

What is claimed is:

1. A medical device comprising:

a shape memory alloy having a reverse martensitic transformation start temperature of greater than or equal to about 0°C; and

a drug coating comprising a polymeric resin and one or more biologically active agents.
2. The medical device of Claim 1, wherein the shape memory alloy has a reverse martensitic transformation start (A_s) temperature of about 10°C to about 15°C.
3. The medical device of Claim 1, wherein the shape memory alloy has a reverse martensitic transformation start (A_s) temperature of greater than or equal to about 20°C.
4. The medical device of Claim 1, wherein the shape memory alloy has a transformation finish temperature (A_f) of about 25°C to about 50°C.
5. The medical device of Claim 1, wherein the shape memory alloy is a nickel-titanium based alloy.
6. The medical device of Claim 5, wherein the nickel-titanium based alloy is a binary nickel-titanium alloy, nickel-titanium-niobium alloy, nickel-titanium-copper alloy, nickel-titanium-iron alloy, nickel-titanium-hafnium alloy, nickel-titanium-palladium alloy, nickel-titanium-gold alloy, nickel-titanium-platinum alloy or a combination comprising at least one of the foregoing nickel-titanium based alloys.
7. The medical device of Claim 5, wherein the nickel-titanium based alloy is a nickel-titanium-niobium alloy comprising about 30 to 56 wt% nickel, about 4 wt% to about 43 wt% niobium with the remainder being titanium and wherein the weight percents are based on the total composition of the alloy.

8. The medical device of Claim 1, wherein the shape memory alloy comprises a nickel-titanium alloy having 55.5 weight percent of nickel based on the total composition of the alloy.

9. The medical device of Claim 1, wherein the shape memory alloy comprises a titanium-nickel-niobium alloy having about 48 weight percent nickel and about 14 weight percent niobium nickel based on the total composition of the alloy.

10. The medical device of Claim 1, wherein the polymeric resin has a glass transition temperature less than or equal to a reverse martensitic transformation start temperature (A_s) of the shape memory alloy.

11. The medical device of Claim 1, wherein the polymeric resin is a thermoplastic resin, thermosetting resin or a blend of a thermoplastic resin with a thermosetting resin.

12. The medical device of Claim 11, wherein the thermoplastic resin is polyacetal, polyacrylic, polycarbonate, polystyrene, polyethylene, polypropylene, polyethylene terephthalate, polybutylene terephthalate, polyamide, polyamideimide, polybenzimidazole, polybenzoxazole, polybenzothiazole, polyoxadiazole, polythiazole, polyquinoxaline, polyimidazopyrrolone, polyarylate, polyurethane, polyarylsulfone, polyethersulfone, polyphenylene sulfide, polyvinyl chloride, polysulfone, polyetherimide, polytetrafluoroethylene, fluorinated ethylene propylene, perfluoroalkoxy polymer, polychlorotrifluoroethylene, polyvinylidene fluoride, polyvinyl fluoride, polyetherketone, polyether etherketone, polyether ketone ketone or a combination comprising at least one of the foregoing thermoplastic resins.

13. The medical device of Claim 11, wherein the thermosetting resin is a polyurethane, natural rubber, synthetic rubber, epoxy, phenolic, polyester, polyamide, silicone, or a combinations comprising at least one of the foregoing thermosetting resin.

14. The medical device of Claim 1, wherein the drug coating comprises an amount of about 5 weight percent to about 90 weight percent of the biologically active agent based on the total weight of the drug coating.

15. The medical device of Claim 1, wherein the biologically active agents are copolymerized with the polymeric resin.

16. The medical device of Claim 1, wherein the biologically active agents are dispersed within the polymeric resin.

17. The medical device of Claim 1, wherein the biologically active agents are encapsulated between layers of polymeric resins.

18. The medical device of Claim 1, wherein the polymeric resin is a biodegradable polymer having different biodegradability rates in order to control release drugs at various rates and times or to release multiple drugs with different pharmaceutical behaviors.

19. The medical device of Claim 18, wherein the biodegradable polymer is a polylactic-glycolic acid, poly-caprolactone, copolymer of polylactic-glycolic acid and poly-caprolactone, polyhydroxy-butyrate-valerate, polyorthoester, polyethylene oxide-butylene terephthalate, poly-D,L-lactic acid-*p*-dioxanone-polyethylene glycol block copolymer or a combination comprising at least one of the foregoing biodegradable polymers.

20. The medical device of Claim 1, wherein the device is an implantable device.

21. The medical device of Claim 20, wherein the implantable device is a stent, bone staple, a vena cava filter, a suture or anchor-like mechanism.

22. A nickel-titanium alloy composition comprising about 55.5 weight percent of nickel based on the total composition of the alloy.

23. The composition of Claim 22, wherein the alloy has a reverse martensitic transformation start (A_s) temperature of greater than or equal to about 0°C.

24. The composition of Claim 22, wherein the alloy has a reverse martensitic transformation start (A_s) temperature of about 10°C to about 15°C.

25. The composition of Claim 22, wherein the shape memory alloy further has a transformation finish temperature (A_f) of about 25°C to about 50°C.

26. A stent manufactured from the composition of Claim 22.

27. The stent of Claim 26, wherein the stent is coated with a drug coating comprising a biologically active agent.

28. A nickel-titanium-niobium alloy composition comprising about 48 weight percent nickel and about 14 weight percent niobium, based on the total composition of the alloy.

29. A stent manufactured from the composition of Claim 28.

30. The stent of Claim 28, wherein the stent is coated with one or more drug coatings having biologically active agents.

31. A method of manufacturing a stent comprising:

cold forming a shape memory alloy from a wire;

heat treating the cold formed, shape memory alloy at a temperatures greater than that at which a martensitic transformation can occur; and

coating the stent with a drug coating comprising a biologically active agent.

32. The method of Claim 31, wherein the shape memory alloy has a reverse martensitic transformation start (A_s) temperature of greater than or equal to about 0°C.

33. The method of Claim 31, wherein the shape memory alloy has a reverse martensitic transformation start (A_s) temperature of about 10°C to about 15°C.

34. The method of Claim 31, wherein the shape memory alloy has a reverse martensitic transformation start (A_s) temperature of greater than or equal to about 20°C.

35. The method of Claim 31, wherein the shape memory alloy has a transformation finish temperature (A_f) of about 25°C to about 50°C.

36. The method of Claim 31, wherein the shape memory alloy is a nickel-titanium based alloy.

37. The method of Claim 36, wherein the nickel-titanium based alloy is a binary nickel-titanium alloy, nickel-titanium-niobium alloy, nickel-titanium-copper alloy, nickel-titanium-iron alloy, nickel-titanium-hafnium alloy, nickel-titanium-palladium alloy, nickel-titanium-gold alloy, nickel-titanium-platinum alloy or a combination comprising at least one of the foregoing nickel-titanium based alloys.

38. The method of Claim 31, wherein the shape memory alloy comprises a nickel-titanium alloy having 55.5 weight percent of nickel based on the total composition of the alloy.

39. The method of Claim 31, wherein the shape memory alloy comprises a titanium-nickel-niobium alloy having about 48 weight percent nickel and about 14 weight percent niobium nickel based on the total composition of the alloy.

40. The method of Claim 31, wherein the drug coating further comprises a polymeric resin having a glass transition temperature greater than or equal to about -180°C and wherein the polymeric resin is a thermoplastic resin, thermosetting resin or a blend of a thermoplastic resin with a thermosetting resin.

41. The method of Claim 40, wherein the polymeric resin is biodegradable.

42 The method of Claim 40, wherein the polymeric resin is polylactic-glycolic acid, poly-caprolactone, copolymers of polylactic-glycolic acid and poly-caprolactone, polyhydroxy-butyrate-valerate, polyortho ester, polyethylene oxide-butylene terephthalate), poly-urethane, polydimethylsiloxane, polyethylene terephthalate, ethylene vinyl acetate blend with poly butyl methacrylate, or combinations comprising at least one of the foregoing polymeric coatings.

43. A method of manufacturing a stent comprising:

laser cutting or chemically etching a nickel-titanium alloy having about 55.5 weight percent of nickel or a nickel-titanium-niobium alloy having about 48 weight percent nickel and about 14 weight percent niobium from a tube, wherein the weight percents are based on the total weight of the composition;

heat treating the alloy at a temperatures greater than that at which a martensitic transformation can occur; and

coating the alloy with a drug coating comprising a biologically active agent.